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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,730	12/10/2001	Yasuji Hiramatsu	P21047	1751

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RESTON, VA 20191

EXAMINER

KACKAR, RAM N

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 11/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/926,730

Applicant(s)

HIRAMATSU ET AL.

Examiner

Ram N Kackar

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1- 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa Masakazu (JP 11-040330) in view of Fukui Kiyoshi (JP 11-251040). Furukawa Masakazu discloses a ceramic heater with a substrate made of carbide or nitride ceramic (Abstract) with a thickness of 0.5-5 mm (paragraph 0012) and a resistance heating body (Drawing 1) formed of a plurality of circuits (Drawing 1) on a face of the substrate opposite to the heating face (Drawing 2).

Furukawa Masakazu does not disclose the scattering of thickness of the resistance heating body to be less than 50%.

Fukui Kiyoshi discloses a similar ceramic heater and discloses resistance body thickness dispersion less than 10% (Abstract).

Therefore it would have been obvious for one of ordinary skill in the art at the time invention was made to keep the thickness dispersion as small as possible so as to have uniform temperature at the heating face.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa Masakazu (JP 11-040330) in view of Fukui Kiyoshi (JP 11-251040) as applied to claim 1 and further in view of Arami et al (US 5591269).

Furukawa Masakazu does not disclose the resistance heating body formed on the insulating layer.

Arami et al disclose resistance-heating body formed on an insulating layer (Abstract).

Therefore, it would have been obvious for one of ordinary skill in the art at the time invention was made to provide heating resistance body on top of insulating layer so as not to have short circuiting, specially at high temperature when the resistance of the ceramic base gets low.

4. Claims 7-10, 12 -16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa Masakazu (JP 11-040330) in view of Fukui Kiyoshi (JP 11-251040) and Kawada et al (JP 07307377).

Regarding claims 7-10 and 12, Furukawa Masakazu and Fukui Kiyoshi disclose all the limitations of these claims as stated in paragraph (2) except the surface roughness of the resistive heating body is not disclosed to be 0.05-100 $\mu$ m.

Kawada et al disclose the surface roughness of a heating layer on a ceramic heater being greater than 5  $\mu$ m (Abstract).

Regarding claims 13-16 and 18 as in claim 7-10 and 12, Furukawa Masakazu and Fukui Kiyoshi disclose all the limitations except they do not explicitly disclose that the surface roughness of the heating body is less than 50% of its average thickness. However, Furukawa Masakazu discloses average thickness of the resistance body to be 1-20  $\mu$ m (Paragraph 0014) and with a 50% maximum, the roughness may be 0.5-10 $\mu$ m. This falls within acceptable disclosed level of roughness in the claim as well as in Kawada et al.

Therefore, it would have been obvious for one of ordinary skill in the art at the time invention was made to have the surface of the heating resistor body rough so that it may have good bonding with the base and cool quickly after the heating is turned off.

5. Claims 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa Masakazu (JP 11-040330) in view of Fukui Kiyoshi (JP 11-251040) and Kawada et al as applied to claims 7 and 13 and further in view of Arami et al (US 5591269).

Furukawa Masakazu does not disclose the resistance heating body formed on the insulating layer.

Arami et al disclose resistance-heating body formed on an insulating layer (Abstract).

Therefore it would have been obvious for one of ordinary skill in the art at the time invention was made to provide heating resistance body on top of insulating layer so as not have short circuiting a specially at high temperature when the resistance of the ceramic base gets low.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5665260, 6379492 and JP 04032184.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK

October 29, 2002

  
GREGORY MILLS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700